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IN THE UNITED STATES PATENT & TRADEMARK OFFICE

IN RE APPLICATION OF	:
MAKOTO YONEYA, ET AL.	: EXAMINER: NGUYEN, H. C.
SERIAL NO: 10/070,908	:
FILED: JULY 12, 2002	: GROUP ART UNIT: 2871
FOR: LIQUID CRYSTAL DISPLAY DEVICE	:

SECOND REPLY BRIEF

COMMISSIONER FOR PATENTS
ALEXANDRIA, VIRGINIA 22313

SIR:

Responsive to the Supplemental Examiner's Answer of April 1, 2008, Appellants submit herewith a Second Reply Brief under 37 C.F.R. § 41.41.

STATUS OF THE CLAIMS

Claims 1-22 are pending in the application. Claims 2, 8-20 and 22 are presently withdrawn from prosecution. Claims 1, 3-7 and 21 are rejected claims. The rejection of Claims 1, 3-7 and 21 is appealed.

GROUNDS OF REJECTION

Claims 1, 3-7 and 21 are rejected as anticipated under the meaning of 35 U.S.C. § 102(b) over a patent to Kim (U.S. 6,091,471). The Office asserts that Kim discloses all of the limitations of present Claim 1 (see pages 3 and 4 of the October 20, 2006 Office Action). In particular, the Office asserts that liquid crystal displays having an in-plane switching mode

inherently have interdigitated electrodes (see page 2 of the Advisory Action of March 15, 2007). The Office asserts that Kim discloses a nematic liquid crystal cell having an in-plane switching mode (see page 2 of the Office Action of October 20, 2006). The Office asserts that an alignment layer having a pre-tilt layer of substantially 0° obtained by a rubbing treatment is disclosed in Figure 14 of Kim (see page 2 of the October 20, 2006 Office Action).

ARGUMENT

In the Supplemental Examiner's Answer of April 1, 2008, the Examiner again asserts that liquid crystal displays having an in-plane switching mode of liquid crystal molecules or optical axis inherently have interdigitated electrodes. The Examiner makes this argument in support of the rejection of the present claims as anticipated by Kim (U.S. 6,091,471). The Examiner admits that Kim does not disclose at least one limitation of the presently claimed subject matter (i.e., "a group of interdigitated electrodes ..."; see Claim 1, line 4; see also pages 2-3 of the March 30, 2006 Office Action) but alleges that this feature is inherent to liquid crystal cells having an in-plane switching mode.

On page 3 of the Supplemental Examiner's Answer, in section A under the heading "Responses", the Examiner asserts that in-plane switching electrodes inherently have comb-shaped interdigitated electrodes. The relevancy of this argument with respect to the rejection of the present claims over Kim is not clear. The shape of interdigitated electrodes is not at issue in the present rejections. The issue is whether all liquid crystal cells having an in-plane switching mode inherently have interdigitated electrodes. The Examiner's argument with respect to the shape of interdigitated electrodes (e.g., "comb-shape") does not address the issue at bar.

The Examiner again cites to Held (U.S. 6,177,972) and Broer (U.S. 7,123,319) as support for the erroneous contention that all liquid crystal cells having an in-plane switching mode inherently have interdigitated electrodes. Appellants previously pointed out that Broer is not prior art to the present application (see page 6, lines 16-23 of the first Reply Brief filed in the present application on December 26, 2007). The Examiner acknowledges on page 6 of the Supplemental Examiner's Answer that Broer has a PCT filing date of December 10, 2001 whereas the present application has a PCT filing date of July 9, 2001. 35 U.S.C. § 363 makes it clear that the international filing date is the filing date of the corresponding national application in the USPTO. The Examiner provides no basis for concluding that Broer is prior art to the present application. Appellants submit that the arguments made in view of Broer are not relevant to the presently-claimed invention.

With respect to the Examiner's arguments in view of Held, Appellants first point out that there are no pending rejections in view of Held. Appellants further point out that Held does not disclose that all liquid crystal cells having an in-plane switching mode inherently have interdigitated electrodes. Perhaps the Examiner is citing Held for the evidentiary purpose of showing that interdigitated electrodes may have a certain structure ("with fingers of folded hands"), however, the structure of interdigitated electrodes is not at issue in the present appeal. At issue is whether all liquid crystal cells having an in-plane switching mode inherently have interdigitated electrodes. Held, on its own, does not support the Examiner's contentions in this regard.

In section B on page 6 of the Supplemental Examiner's Answer, the Examiner attempts to distinguish Clark, Patel and Jaegemalm on the basis that these publications are not cited in the rejection. It does not matter whether the publications are cited in the rejection. What is important is that these publications demonstrate that liquid crystal cells

having an in-plane switching mode without interdigitated electrodes are known and thus the Examiner's assertion of inherency is not correct.

In section B on page 6 of the Supplemental Examiner's Answer, the Examiner repeats his position that Clark, Patel and Jaegemalm do not disclose the liquid crystal display that operates with an in-plane switching mode, on the basis that "Clark, Patel and Jaegemalm illustrate the liquid crystal display with two electrodes formed on different substrates; however, in-plane switching mode illustrates the liquid crystal display with two electrode formed on the same substrate (*underlining in the original*)." Appellants submit that this reasoning of the Examiner appears to be again based on the Examiner's erroneous assertion that a liquid crystal device operating in an in-plane switching mode must include electrodes which generate an electric field having a component substantially parallel to the surface of the substrate. Appellants already pointed out in the first Reply Brief that it is not necessary for a device to generate an electric field having a component substantially parallel to the surface of a substrate in order for the device to operate with an in-plane switching mode. Clark, Patel and Jaegemalm describe devices which operate with an in-plane switching mode by application of a perpendicular electric field.

With respect to section C of the Supplemental Examiner's Answer, the Examiner appears to do nothing more than restate the Examiner's position that Kim discloses a pre-tilt angle that is substantially 0°. It appears that the Examiner fails to give full consideration to the arguments of the first Reply Brief beginning on page 5, line 17 through page 6, line 12 where Appellants provided evidence that the drawings of Kim do not in fact disclose a pre-tilt angle of substantially 0°.

The Examiner appears to rely on Figure 4 of Kim as support that Kim discloses a pre-tilt angle of substantially 0 degree with respect to a corresponding substrate under conditions where the photo-energy of ultraviolet light is 6000mJ/cm. Figure 4 of Kim merely describes

the relationship of pre-tilt angle to the exposure of photo-energy at a certain exposure level. The Examiner's assertion that Kim discloses a pre-tilt angle of substantially 0 degree is contradictory to the disclosure of Kim . Kim explicitly states that small pre-tilt angles are disfavored (see column 2, lines 49-54 of Kim). Furthermore, Kim discloses that the multi-domain liquid crystal cells of Kim comprise different pre-tilt angles per domain. If a pre-tilt angle of substantially 0 degree with respect to a corresponding substrate were to be formed by irradiation of ultraviolet light at photo-energy of 6000 mJ/cm, the device of Kim would not form different pre-tilt angles per domain. Formation of a multi-domain structure having different pre-tilt angles per domain is essential for Kim in order to achieve a wide viewing angle which is the object of the invention discloses in Kim.

The claimed invention recites the feature "a pre-tilt angle in each of the liquid crystal anchoring directions with respect to the corresponding substrate surface is substantially zero", namely the claimed invention requires that all domains have a "single" pre-tilt angle of substantially zero degree. Kim does not disclose this feature of the claimed invention because Kim discloses that the multi-domain liquid crystal cells of Kim comprise different pre-tilt angles per domain. Formation of a multi-domain structure having different pre-tilt angles per domain is essential for Kim in order to achieve a wide viewing angle which is the object of the invention discloses in Kim.

The rejections are therefore not supportable and should be overturned.

Respectfully submitted,

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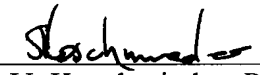

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